Immersive 3D encrypted collection game (NFTs+DeFi+Games)

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V1.0 era dragon invasion

Abstract

Dragon Mainland is an encrypted collection game with PvP (Player versus Player) and PvE (Player versus Environment) combat, advanced breeding, free exchange, and collection development. Inspired by “How to Train Your Dragon”, players can continuously strengthen and trade their dragons in the game. The dragons can freely fight or breed, and at the same time, players can earn tokens during the game in Dragon Mainland.

We aim to build a completely decentralized and highly autonomous community based on digital blockchain game world, The encryption world is fair and open, composed of open source code. Once the game is deployed, the developer has no control over it. The DAO community will be able to validate all transactions and actions without the involvement of a third-party platform

Dragon Mainland community ecology integrates resources of all parties through DMS (Dragon mainland shards) digital assets to realize ecological co construction. Any player can obtain tokens through skilled game skills and contribution to the ecosystem. Through the ecological application of DAO, the community will carry out community autonomy with unified rules for automated execution, so as to realize open, fair and non-interference community autonomous operation.

Dragon Mainland has introduced many innovations in the field of blockchain games, including defi mortgage mining, dynamic rare attributes of games, DAO management of game mechanism, etc. it uses a revolutionary token economy system to perfectly combine DeFi and NFT into this encrypted world, and uses financial mechanism and game system to empower users, Created a truly unique and lasting game financial ecosystem.

Dragon Mainland will show you its powerful technical and economic attributes. It is mainly composed of the following parts: data storage and retrieval, random algorithm, ecosystem, battle implementation, game mechanism, and more stable monetary economics.

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Contents

1.Introduction

1.1 Origin

The vision of catching dragons, domesticating dragons, commanding or driving dragons to fight has existed since ancient times. From many documents, we can see that both Western and Eastern dragons have a passionate spirit of adventure. People's love for them can be seen in movies and games. The Dragon Mainland is an encryption collection game based on dragon culture, giving full play to the advanced technology of block chain and the scarcity of potential energy in NFT digital economy.

Dragon Mainland hopes to bring users an NFT game platform with interesting, free and open . Through the unique algorithm model, players can train, manage, fight and trade the dragons in that. At the same time, players can also make their dragons strong through training and strengthening, collect rewards as obtain achievements in the game and create higher market value, In addition, players can also breed new dragons through the genetic mechanism of Dragon Mainland, so as to have the opportunity to obtain stronger and rarer dragons.

Each dragon has a unique genome, which determines its appearance and characteristics. The genetic data of each dragon is safely stored at a specific address on the blockchain network and cannot be modified, copied or destroyed by any third party.

All data of Dragon Mainland is completed in an open, credible and decentralized manner on the blockchain. Our goal is to establish a truly decentralized NFT encryption game, which will be a huge market. We hope to connect the "dragon Trainer" and "dragon Hunter" all over the world and jointly create an economically prosperous world through the Dragon Mainland.

1.2 Digital Collectibles NFT

The development of blockchain technology has spawned NFT (non fungible token). The emergence of NFT, a digital collection with value scale, has defined a new era: players no longer need to rely on a trusted third party to issue assets to maintain the rarity of their items, but can completely rely on independent, anti censorship, untrusted and transparent entities, That is, the code on the smart contract and the files stored on the blockchain.

However, earlier blockchain games lacked many important functions of decentralized technology, such as storing these NFT files. Here we specifically refer to game props, which may be composed of multiple pieces of code and multiple pictures, and even video files. The storage space required is not small, and it can not be carried by a random server, Thanks to the distributed storage technology, we have a more decentralized, safe and convenient storage medium. Dragon Mainland will use IPFS (Inter Planetary File System) to store NFT files. IPFS is a relatively mature distributed storage scheme with large storage space in the market. Dragon Mainland will also consider other distributed storage methods, which depends on the later growth space, but our purpose is to safely store assets and save files on the blockchain so that players can use, trade and retrieve efficiently and conveniently.

Although the encryption world is far from perfect at present, we still believe that the game prop market is huge, and the number of dragon lovers in the market is better than other types. At present, the market growth of the game props market mainly comes from the sales of game props directly sold by publishers, while the earning games with high props circulation have huge market potential and have not been explored (and the latter is the main purchasing power. In the stock market, it is obviously unreasonable if we only count the performance of listed companies for evaluation, but in the game market, In the name of the publisher only It makes sense to evaluate market growth by performance).

From the development track, many games are also changing from service-oriented to player creativity, which is a general trend. The listing of Roblox, the first sandbox game platform in the meta universe, is enough to illustrate all this. The number of game props earned by players is increasing day by day without attenuation. However, in many games, game players are still unable to trade and cash game props, which leads to huge losses. We are working to solve this pain point.

1.3 Integrate NFT and DeFi into the game and form a gamefi system

NFT is a new carrier of the future game industry, and DeFi is a new economy in the future game system, providing a credible and intelligent economic ecology for the game ecology.

Dragon Mainland combines itself with the concept of “NFT + DeFi “by the blockchain technology. And finnally created the gamefi ecosystem of Dragon Mainland through the ecosystem of revenue aggregator, Liquidity mining and “NFTs + DeFi + games”.

The revenue aggregator of gamefi's infrastructure will not only match the best liquidity mining revenue strategy for users, but also have the opportunity to obtain distinctive NFTs that can be used to upgrade and trade.

Through our original version of decentralized application (DAPP), players can train, manage, fight and trade dragons in the Dragon Mainland, make their dragons stronger through training and strengthening, collect rewards to obtain achievements in the game and create higher market value. In addition, players can also breed new dragons through the genetic mechanism of the Dragon Mainland, So as to have the opportunity to obtain stronger and rarer dragons.

2. Gameplay

2.1 Background of Dragon Mainland

Dragon Mainland original was a virtual highly civilized world. Due to the invasion of outer space creatures, the dragons can't beer the planet be harassed by other foreign invaders. They began to find other planets suitable for living and breeding. By chance, they came to the planet inhabited by human beings, which triggered a war between human beings and the dragons. Finally, human tamed the dragons, and led them to recapture their hometown and re-establish the dragon mainland.

Dragon Mainland is a Multi-Chain Based blockchain game, which is completely based on the current blockchain technology. It has rich game playing, completely fair and open trading market, investment market and complete ecological encryption game. Players no longer need to rely on a trusted third party, but can completely rely on independent, anti-censorship, trustless and transparent smart contract code.

Dragon Mainland will establish an ecosystem based on the combination of community driven "NFTs + DeFi + Games". Present financial products in the form of games, gamify DeFi applications, and combine DeFi with games through NFTs to form a gamefi system (integrate financial products into the game Ecology). Through the ecosystem of revenue aggregator, liquidity mining and "NFTs + DeFi + Games", gamefi's infrastructure will not only offer the best liquidity mining revenue strategy for users, but also supply different NFTs for users to upgrade dragons and trade.

Such improvements have the following characteristics:

- Openness and transparent operating environment, the core value of the game will not be operated in the dark, all players can review the fairness of the game at any time.

Almost all online games will allow players to obtain the props, rewards, and various activity rewards of game. However, in the existing game development and operation system, the algorithms of these core values are not openness, transparent and even unfairly. Game developers and operators control such core values through black box operation on the server, which affects the game play-ability, fairness and sustainable operation ability of the game.

- Players have the same status and power, which will not cause inequality between players.

Players will try different types of games, including chess and cards, MMO, MOBA, athletics, etc. the numerical balance in various games and the fairness between players are the content that players care about very much. If players are in an unfair and unequal environment and users have no way to query and verify, it will bring game and competitive losses and cause the loss of users.

- It has higher user stickiness and the growth of trading market, which is conducive to promoting the prosperity of game ecology, establishing stable game promotion channels, encouraging senior player to recommend games to new players and obtain rewards.

A stable economic system can drive the promotion enthusiasm of players and establish a sticky social circle at the same time. The quality evaluation and revenue acquisition of game promotion channels depend on the "trust relationship" with game operators. When the trust relationship changes into a smart contract, it becomes the most stable mutually beneficial relationship. In the previous game models, the game promotion channels cannot obtain the real promotion efficiency feedback, result in the decrease of promotion efficiency of game channels, which can not be further optimized and transformed.

2.2 Genome

Each dragon has its own unique genome, which not only determines all the skills and attributes of the dragon. Will also decide the external form of each dragon. The composition of this genome comes from the genetics of biological science and it is composed of a smart contract code base, which is equivalent to a huge gene base. Uint256 is adopted (Uint does not bring any symbols, range 2 ^ 256, that is 1.157920823732e + 77, which is similar to that of bitcoin randomly generating private key Algorithm) to generate randomness. Of course, the generation of randomness is not difficult, However, it is not so easy to use random values to label genes, realize gene recombination and gene mutation logic (about this issue, we will mention it below, see the generation and combination of random numbers). When the player breeds dragons, each gene has a chance to be passed on to offspring. Of course, the combination of genes of different races may also produce genetic mutations, which is random.

Each dragon has variability (usually we call it an upgrade. Unlike the tradition, we respect the natural laws of biology, so that breed conforms to genetically inherited biological characteristics, with randomness) and moldability (we call it acquired learning in biology). We give each dragon the ability to learn acquired. Players can upgrade by allowing dragons to absorb dragon skulls or swallow other dragons.

2.3 Mechanism

Our goal is to create a fair and equitable crypto collector game where users who spend more time playing the game have the possibility to own higher value dragons and accumulate more tokens. In order to achieve this, the game's ecosystem should be balanced and should meet the following criteria.

(1) The growth of the number of dragons should be limited by the game mechanics in order to avoid the proliferation of dragons.

(2) It should conform to the rules of nature's meritocracy, and dragons with insufficient attributes should be destroyed.

(3) Early participants should have an advantage over those who join the game later in acquiring tokens.

(4) There should not be a certain winning strategy that allows players to always have the advantage.

2.3.1 Types/Races of Dragons

Figure 1: Dragons of five races

There are five different races of dragons in the Dragon Mainland,which namely Fire, Water, Rock, Storm and Thunder dragon. Each dragon may have a combination of different types and varieties of body parts, depending on the dragon's genome. In addition, each race of dragons has certain restraint relationships with other races of dragons, similar to the game of "rock-paper-scissors", as shown in Figure 2. For example, when a water dragon attacks a fire dragon, the damage caused will be increased because water can extinguish the fire. In addition, each dragon clan has specific special attacks, special defenses and special peace skills for the purpose of restraint.

Figure 1: Dragons of five races

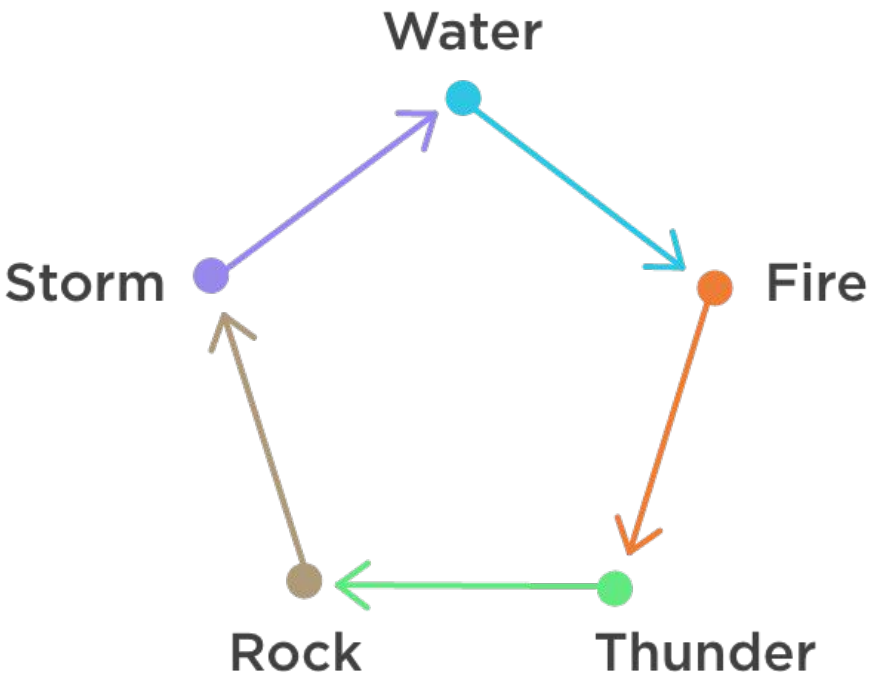


Figure 2: Each dragon has an advantage over the dragon pointed to by the arrow: water dragon restrains fire dragon, fire dragon restrains hunder dragon, storm dragon restrains water dragon, rock dragon restrains storm dragon, and thunder the dragon restrains the rock dragon.

2.3.2 Basic Combat Attributes of Dragons

Each dragon is born with five basic combat attributes: Attack, Defense, Health, Speed, and Life Force which are calculated based on the dragon's genetics and level.

1. Health - Affects the HP value of dragon.
2.Attack - Affect the additional added value of card damage.
3.Defense - Affect the additional reduction value of card damage.
4.Speed - Affects the dragon's sequence of actions and the reduction of the chance of critical strikes.
5.Life Force - Affect the combination bonus of card damage and the probability of strikes/duration of entering the [Death State] after Dragon's Blood goes to zero.

	Health	Attack	Defense	Speed	Life Force
Water Dragon	58	42	42	48	48
Fire Dragon	42	58	48	48	42
Rock Dragon	48	48	58	42	42
Storm Dragon	48	42	42	58	48
Thunder Dragon	42	48	48	42	58

Table 1. Basic combat attributes of different dragons

As shown in Table 1, dragons of different races will excel in a particular combat attribute but will also have a distinct disadvantage. For example, a fire dragon will have a stronger attack but weaker Life Force than other dragons, and an rock dragon will have a higher defense but lower speed.

2.3.3 Basic skills of dragons

Each dragon is born with four initial skills that are determined by the dragon's body part, and various races of dragons have varied skill preferences. Furthermore, each skill may be strengthened and advanced by swallowing a dragon of the same race; each skill's maximum level is 3.

For example, the skills of fire dragons focus on offensive, and the skills of rock dragons focus on defensive, as shown in Table 2.

	Skill Focus
Fire Dragon	Violent Combat
Water Dragon	Assistance and Regeneration
Rock Dragon	Defensive and Control
Storm Dragon	Speed and Agile Attack
Thunder Dragon	Skill Damage

Table 2: Skill focus of different races of dragons

2.3.4 Body Parts Of Dragon

Figure 3: Conceptual characteristic of the fire dragon

There are six body parts on each dragon, and the characteristics of these body parts determine the dragon's initial skills and combat attributes. The bonus attribute of the part is determined according to the occupation of the part. See Table 3:

Occupation	Health	Attack	Defense	Speed	Life Force
Water Dragon	5	0	0	2	2
Fire Dragon	0	5	2	2	0
Rock Dragon	2	2	5	0	0
Storm Dragon	2	0	0	5	2
Thunder Dragon	0	2	2	0	5

Table 3: This table shows the corresponding specific attributes for which different body parts are responsible.

For example:
The bonus attributes of the water dragon's wings are health +5, speed +2, and Life Force +2;
The bonus attributes of the water dragon's tail are health +5, speed +2, and Life Force +2;
The bonus attributes of the fire dragon's wings are attack +5, defense +2, and speed +2;
The bonus attributes of the fire dragon's tail are attack +5, defense +2, and speed +2;

2.3.5 Talent

alents are passive skills that dragons bring with them at birth to make them perform better in PVP and PVE battles.
When a dragon is created, a talent from the dragon's corresponding profession is randomly attached to the dragon, and does not follow the rules of parental talent inheritance; the talent is randomly generated.
A dragon's talents can be upgraded. For the four skills of the dragon, if one of the skills is upgraded to three stars, the dragon's talent skill will be upgraded once, so the dragon's talent can be upgraded up to four times. Dragon's talent upgrade needs to consume DMS and DMP.

2.3.6 Breeding Of Dragon

Each dragon can breed with another dragon. In order to avoid the excessive number of dragons, each dragon can breed up to 7 times. A certain time interval is required between each breeding. Additionally, a certain amount of breeding potion DMP (Dragon Miracle Potion) and DMS (Dragon Mainland Shards) needs to be consumed. The number of breeding potion that needs to be consumed depends on the number of times the dragon has been bred.

Breeding Occurence	DMP Required Per Dragon	DMS Required Per Dragon	Days Between Breeding
1	200	0.2	0
2	400	0.4	2
3	600	0.6	4
4	1000	1	6
5	1600	1.5	9
6	2400	2	12
7	3400	2.5	15

Table 4 : Breeding Restrictions

2.3.7 Dragon genetics

Figure 4: Concept characteristic of Storm Dragon

Each of the six body parts of the dragon is controlled by three genes: a dominant gene, a recessive gene and a secondary invisible gene. Dominant genes determine the external shape of each dragon, and the differences between different genes affect the appearance and attribute skills of the dragon. During breeding, each gene has a chance to be passed on to offspring. The hereditary probability is shown in Table 5

Dominant gene	37.5% of Genetic probability
Recessive gene	9.375% of Genetic probability
Sub-recessive gene	3.125% of Genetic probability

Table 5: Odds of inheritance of different genes to offspring

In addition, there is a certain chance of genetic mutation when dragons breeding, which is divided into positive and negative mutations. And when dragons are inbred, there is a certain chance that they will be penalized by the genetic algorithm to breed a negative genetic mutations. Positive mutations are divided into two classes: rare and mysterious. Details can be found in Table 6

Mutations	Mutation Types	Attribute Bonus
Negative Mutation	Inbreeding	-0.5
Positive Mutation	Common genes	0
	Rare genes	0.5
	Mystic genes	1

Table 6: Additive coefficients for each attribute according to the genetic variation of the dragon.

The probability of occurrence of a positive mutation (excluding the case of two relatives reproducing each other) can be described as follows.

(1) During the incubation process, each dominant gene has a 0.1% probability of rare gene-level mutations.
(2) During the incubation process, each dominant gene has a 0.01% probability of a mysterious gene-level mutation.
(3) The mutated gene will not be passed on to the next generation.
(4) The dominant gene that produces the mutation will have a certain degree of addition to the dragon's attributes.

When dragons are inbreeding, there is a high probability of negative mutations. The probability of mutation depends on different situations, as follows:

(1) When siblings breeding, the probability of negative mutation is 80%.
(2) When breeding between half brothers and sisters, the probability of negative mutation is 60%.
(3) When the blood relationship between the second and third generations reproduces, the probability of negative mutations is 40%.

2.3.8 Dragon Raising

Figure 5: Concept characteristic of thunder dragon

It was in the state of a dragon egg when the dragon was first bred, at this time, information about the dragon's attributes and skills cannot be seen, the dragon egg can only be used to distinguish which race it belongs to. And It needs some days of incubation to hatch the dragon.

2.3.9 The Demise of the Dragon

In order to ensure that the breeding of dragon conforms to nature's rule of superiority and suppress the proliferation of dragons, some dragons with poorer attributes will be able to be destroyed by being devoured. Only dragons with the same attributes can be devoured by each other and then it will be destroyed directly and cannot be recovered, for every dragon of the same attribute consumed, one of the four skills can be randomly upgraded.

Figure 6: Concept characteristic of water dragon

2.3.10 Dragon skull

Dragon skulls are NFTs issued based on the ERC-721 standard which can be used to strengthen the basic combat attributes of dragons. Dragon skulls are racially divided like dragons. And dragons can only absorb a maximum of 3 dragon skulls of the same race and then randomly improve one of the five combat attributes. Dragon skulls are obtained as follows:

1. Obtained by burning DMS to open Dragon treasure box
2. Buy directly from other players in the Marketplace
3. Other special event rewards

2.3.11 The second version of the game

Breeding, fighting, and growing of dragons are only plans for the first version of the Dragon Mainland, and the team is currently developing the second version which adds a land resource mechanism. Players can own one or more pieces of land on continents suitable for dragon life with different attributes. At the same time, it adds a variety of gameplay methods such as construction system, item generation, and battle bonuses. It will also be irregular. The organization of game events between players on the continent as a unit.

2.4 Marketplace

Marketplace can only exchange platform-related NFTs such as Dragons, Dragon skulls, Land and other props. All transactions and auctions in the market will be carried out using smart contracts, and will be directly written to the chain. Our goal is to establish a fair and equitable market to facilitate the free trading of in-game assets between platform users. The additional benefit of this market is that economic supply and demand principles will be automatically integrated into the system, allowing the community to determine fair prices for game assets held by users.

2.5 Revenue aggregator (Liquidity mining)

The revenue aggregator is an indispensable and important part of the Dragon Mainland GameFi ecosystem. It integrates the NFTs of Dragon skull with games based on the unique liquidity mining strategy on the DeFi ecosystem. The infrastructure of Dragon Mainland will supply the best liquid mining revenue strategy for users by liquid mining, opening blind boxes and NFTs.

In order to provide the best returns to liquidity providers, the revenue aggregator of Dragon Mainland integrates a series of smart contracts with optimized liquidity mining strategies, and will use the best automatic compound interest strategy to automatically seek the best return strategy for users . Dragon Mainland revenue aggregator will support both the Single Token and LP token mining strategy.

3. Technical Overview

Why does the NFT and all data of Dragon Mainland need decentralized data storage and retrieval? Juan Benet, the founder of Protocol Lab, once said on Twitter "Not on IPFS, Not your NFT". We all know that the essence of NFT is the tokenization of digital content. These digital contents are composed of text, pictures, audio, video, etc. Which are uploaded to the blockchain, and then NFT tokens are issued. These files are included in its metadata. If improperly kept, the NFT assets you own are likely to be worthless. For example, you buy a video products of NFT, although you can query Token information on the chain, due to multiple factors such as excessive file memory, transmission efficiency, storage cost, etc., the platform does not have on-chain decentralized storage, but uses the method of storing asset data off-chain. That is to say, if the storage platform is overloaded to undertake a large amount of data storage one day, then the NFT you purchased is likely to be lost.

3.1 Distributed Storage

Filecoin's distributed storage can help NFT achieve permanent storage, and no one can modify it. The NFT stored by Filecoin must be packaged by miners and uploaded to the Filecoin network for storage, before the entire transaction (saving) process is considered complete. Of course, asset owners can also use the Filecoin search function to view assets or trade assets. Therefore, NFTs stored on Filecoin can obtain effective security guarantees.

IPFS is based on content addressing which refers to the use of hash values to uniquely describe the links of the content itself. It uses an efficient routing algorithm to search the network, that is, only request data from peers you trust.

The decentralized mode of IPFS allows web applications to work in a local network disconnected from the original source, which means that in IPFS , Even if part of our NFT content is lost or compromised, it will not cause the integrity of the NFT content to be lost, or be leaked or stolen, as this file will be broken into multiple fragments to avoid all the files stored in IPFS are lost due to a part of the loss, and IPFS protects the files in an encrypted manner and makes them permanent. You and the people who share the data with you can save a copy of the information and rely on the same link Make permanent storage.

3.2 Better content index

IPFS search the content of the file by hash identification. When you have the hash, you will be asked "who owns the content (hash)", and then be connected to the corresponding node to download, that is, this can form a point-to-point coverage , So as to achieve very fast, widespread and ready-to-use routing.

At the same time, it is most convenient to retrieve NFT on IPFS. From the perspective of the ownership of NFT content, ERC721 only marks the difference in assets, while IPFS marks the difference in content, which is more convenient for content dissemination and sharing.

Therefore, only when the NFT is actually stored in the IPFS, or public chain of Filecoin, can the data storage and retrieval problems existing in the NFT be better solved. Of course, it is not just IPFS. Any distributed storage method is worth testing, but from the current point of view, IPFS is considered the optimal solution. Similarly, it also allows users who hold NFTs to feel more at ease, and at the same time allows the value of NFTs to be better preserved and delivered.

3.3 Data and Algorithm

3.3.1 Random number

There are currently two main methods for random number generation. The first relies on some physical phenomena, which are expected to be random. The second is through some function algorithms. The latter uses some initial values to generate a random number. However, if the initial value (or its source) and the RNG algorithm are known to the attacker, the generated random number can be copied. Therefore, this method called pseudo-random is not truly random.

For most games, the generation of probability is very important. Obtaining random numbers, or more accurately, pseudo-random, is a complicated problem, because random numbers that affect the outcome of the game should be equally impractical for all parties.

In current online applications, there are many ways to obtain randomness, either independently or by relying on a third party. However, users of these applications are rarely able to verify the acquisition process of these random numbers.

(1) RNG can generate a random number in a short time, preferably within one second.
(2) RNG can be trusted and verified by being stored on the blockchain.
(3) RNG should be able to serve a large number of players at the same time.
(4) The gas/transaction cost of obtaining random numbers is low.

You can also obtain a random (pseudo-random) number directly from the block data. It is based on block number, block hash, etc. This method is fast (random numbers are generated in the next mined block) and relatively cheap, but miners may affect the output of the block and generated numbers. Please read on for more information.

3.3.2 Oracle

This method is transferred to the blockchain based on some credible external sources of randomness. Oracle is currently used by many projects, such as ChainLink, Basis Gold, and Band Protocol. This implementation is very simple, but its weakness is that the password may also be broken. Since two blockchain transactions are required, getting a random random number also takes longer. In our tests, it takes about 30 seconds to obtain a random value using this method.

3.3.3 Commitment-Disclosure

There are two steps for RNG which using this method. In the first step, participants send random hash values and pay a deposit. In the second step, the sent values are disclosed, and a random number is generated based on these initial values. The pledge is to ensure the loyalty of participants which is used by RanDAO, Sloth, and Maker-Darts. The disadvantage of this method is that in order to allow participants to participate in the generation of random numbers, most implementations require payment, and this method is subject to DDOS attacks. The latter can result in the loss of pledges by honest participants.

3.3.4 Future blocks

During this RNG, the user will send a transaction and calls the RNG function. Then the sender's address will be added to the request list of the RNG smart contract. In the next step, after the network has mined some blocks, the user can request a random number through another transaction. Based on the initial input and some hashing algorithm (such as sha256), the generated random number is used to take the desired action.

3.3.5 Signidice Algorithm

This RNG method is in the Gluk256 resource library. The BSC smart chain receives a newly generated public key from the owner and waits for the user to provide a value. After receiving this value, the owner hashes it with the private key to generate a required random number, which may be confirmed by the public key that has been published. Although the parties should be punished for not revealing their signatures, we think this method is too complicated for our use case, but it is still possible for us to use this method. (There will be more introduction below)

3.3.6 Solution of Dragon Mainland

According to the initial requirement, RNG must generate a random number as fast as possible (ideally, it should be less than 1 second, however, the current processing time is limited by Ethereum's block creation speed). In this case, the best solution is to use blockchain block data.

Our solution: Use the hash value of a block to generate random numbers. Since each transaction relies on different input data (dragon genes), the attacking dragon always has an advantage because it can adjust its tactics according to the opponent's skills. The defending dragon uses the default tactics previously defined by the owner. All battle results depend on the overall data and overall skills of the fighting dragon.

Different dragons will get different results, even if several transactions are included in a block, so there are different random numbers. uint256(keccak256(abi.encodePacked(blockhash(block.nu Mber-1), now)). where now is block.timestamp. For complex calculations that require several different random numbers, we use the division of the originally generated random number, And repeat this process until the necessary number of random numbers is obtained.

3.3.7 Breeding Algorithm

A major limitation of current centralized game is the process of creating new characters. The current solution is to allow the user to select some characteristics of the role, or to provide a default role with a pre-configured range of capabilities. In addition, all current solutions are centrally designed, so players cannot control or have the ability to verify the process of character creation in the game, including the number of characters created or their skill sets.

Therefore, the creator of the game cannot release a newly created character at any time and improve its skill set or unique appearance, which will destroy all the economic incentives for current players to invest time and money in their character. This is especially important when all characters created are collectibles.

We have proposed a system by which no third party (or even creator) can control the creation of new characters after the system is released.

In order to build such a system, all steps of the creation process should be completed on the blockchain. And there are two main principles must be met:

(1) A random number must be generated or at least stored on the blockchain.

(2) Character reproduction must also be completed on the blockchain through a publicly accessible smart contract.

RNG has been described in this document, here we will implement on-chain propagation on EVM.

The genetics of dragons play a vital role in the Dragon Mainland as they determine the character, appearance, and combat abilities of the dragon, which totally determines the market value of a particular dragon as an encrypted collection. Therefore, we tried to make the genetics of dragons similar to those of animals in the real world, however, since we are talking about dragons, we added some additional features. In addition, we must keep complexity at a level suitable for EVM.

At the same time, in order to minimize costs, we reduce the complexity of smart contracts, users only need to pay a small fee to complete, and the predictability of breeding has not been removed.

We hope that with the release of new solutions, the cost of breeding will be reduced in the future, and it is possible to switch to more advanced forms of breeding algorithms.

3.3.8 Diversity Genetic

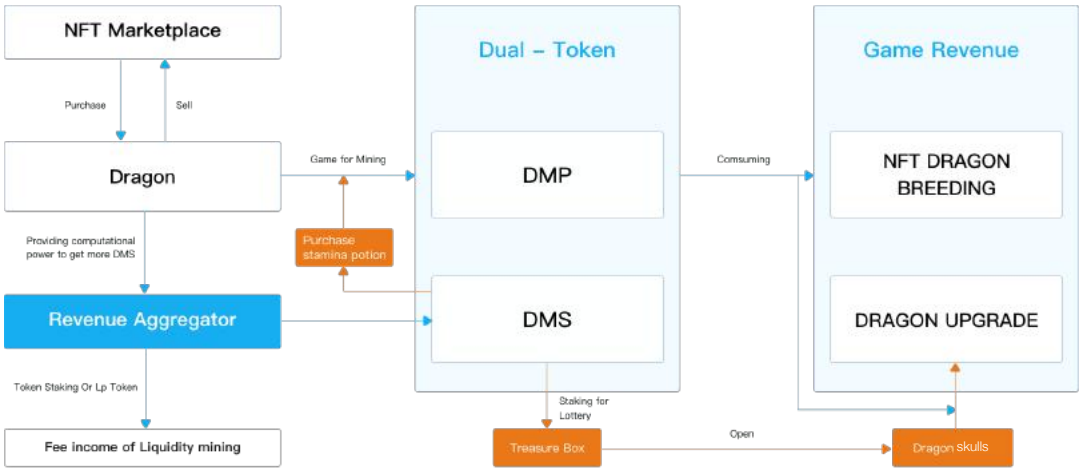
The five different dragon types will be released during the launch of Dragon Mainland. Each type will inherit conventional genes according to the gene variety table. During the creation period, 10,000 genesis eggs will be released. Inbreeding genes and the highest quality genes (mysterious genes) do not play a role in the creation of the dragon. There will be 97,656,250,000,000 different dragons coupled with inbreeding and mysterious genes from these first five types. On average, every person has 1,28 million in the world.

Figure 7: Concept characteristic of five dragon type

4.Economic Model

4.1 Token Introduction

There are two tokens in the Dragon Mainland: DMS (Dragon Mainland Shards) and DMP (Dragon Miracle Potion)



4.1.1 DMS (Eco-Tokens)

Dragon Mainland Shards (DMS) is the Eco-Tokens of Dragon Mainland, which can be used in below scenes:

1. Payment: The marketplace will be opened simultaneously after Dragon Mainland is online, and users can purchase dragons \ dragon skulls and Stamina Potions etc., from other users in the marketplace by DMS.

2. Game consumption: A certain amount of DMS is required for the breeding and cultivation of dragons in the game (skill upgrade / skull absorption / skull fusion).

3.Governance: Holders of DMS will be allowed participate in the platform governance voting by staking the tokens.

4. Staking: Users will be able to staking DMS to get weekly rewards.

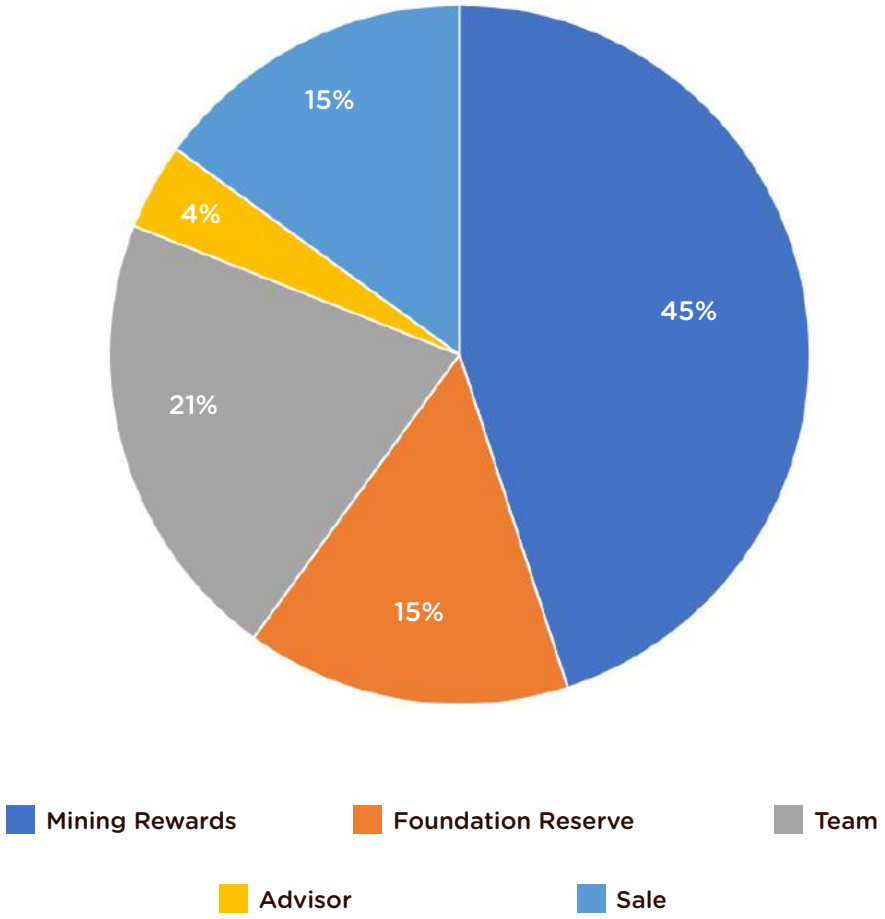
5. Liquidity mining: Users can provide DMS liquidity to the revenue aggregator to obtain DMS token rewards.

6. The platform will repurchase the market's DMS by the proceeds earned by the Marketplace.

DMS holders can earn DMS tokens by staking their tokens, playing games, providing liquidity, and participating in key governance votes.

4.1.2 Token allocation and release plan

The total supply of DMS is 1,000,000,000 and no additional DMS will be issued. The completer release time will be 60 months after the launch of the Genesis Dragon Egg.



Mining Rewards 45%

We have set 45% of the total DMS token supply for the mining release to encourage players to actively participate in the game and motivate them to keep holding DMS tokens,The same release rule will be adopted in batches and the release will be done over a five-year period. The details of the release program will be disclosed in Dragon Mainland's Economics white paper in future.

Foundation Reserve 15%

In order to maintain the rapid prototyping, Health and sustainable development of the community and the entire ecological environment, the Dragon Mainland Foundation reserves 15% of the total issuance of DMS, which will be used for ecological construction, market promotion, business development, legal compliance, etc. .

Team 21%

There will be 21% of total supply reserved and reward the founding team of Dragon Mainland who has made a lot of contributions for example the technology development, resource organization, financing, etc in game design, and has continued to contribute labor and wisdom in the construction of the ecological environment in the early stage of the project.

Advisor 4%

Dragon Mainland has a strong team of consultants who provide great help and support to the project in the early stages of the project. For this reason, we set aside 4% of the total supply of DMS tokens to reward them, and this part of the tokens will also be released in batches within five years.

Sale 15%

This part of the share will be allocated to investors who provide us with financial support in the early stage of the project, and this part of the tokens will also be released in batches.

1. Obtain DMS by providing liquidity to the revenue aggregator. Users can destroy it on the official website or the related interface of the DAPP to open the corresponding number of Dragon treasure boxes after receiving it. There will be a Dragon skulls NFT randomly.

2. Purchase in the Marketplace. The DMS you bought also can be destroyed to opening the dragon skullss.

3. After each acquisition of dragon treasure chests, you can only continue to obtain a new one after opening them completely. (Make sure there are no outstanding transactions)

4. There is a limit on the number of treasure box that can be obtained and opened.

4.1.3 DMP (Dragon Miracle Potion)

DMP is the functional utility token issued by Dragon Mainland. It is required for dragon breeding and raising. Each time a dragon breeds a specific amount of DMP is consumed and that amount exponentially increases with each subsequent breeding. DMP is also consumed during all dragon raising activities (dragon skull synthesis, dragon skull absorption, dragon devouring).There is no maximum total supply of DMP. It can be earned as a reward for passing levels, completing daily quests, and through dragon pledge mining.

4.2 Obtain method

4.2.1 Play to Earn

1. A competition mission will be updated every period of time in the game. Players who complete the mission within a limited time can get the corresponding number of DMS;
2. Official events (official events regularly hold various themed events, and participants may have the opportunity to obtain DMS);
3. PVP battle (players ranked TOP200 each week can get DMS);
4. With the gradual improvement of game functions, there will be more opportunities to obtain DMS;
5. Adopt 5 years release method , and the number of unlocked will be less and less over time.

The goal of Play to Earn is to attract players to join the Dragon Mainland ecosystem to earn token rewards by playing games, and to give ownership and equity to the most active community members.

4.2.2 Stake to earn

4.2.2.1 Staking for mining

a. Users can obtain weekly mining rewards by staking DMS, and the reward algorithm will be time-weighted. The longer the staking time, the richer the mining rewards will be obtained;
b. Pledged mining for DMS rewards. The reward of DMS mainly comes from the transaction fees of the marketplace and the released part of mining reward

4.2.2.2 Dragon Pledge Mining
In addition to token pledging for mining, dragons in your backpack can also be pledged to earn DMP. Dragon pledges are calculated based on the dragon's battle power, and the dragon's pledges can be increased by increasing its battle power through the dragon raising system.

4.2.2.3 Provide LP token liquidity to the revenue aggregator
a. The user provides the liquidity of LP tokens to the revenue aggregator to obtain income;
b. The income includes the handling fee for providing liquidity and DMS token rewards. The DMS for liquid mining rewards mainly comes from the released part of mining;
c. The dragon owned by the user can provide additional computing power for pledge mining through the revenue aggregator. The computing power value of the dragon depends on the fighting power of the dragon in the game

4.2.2.4 Provide liquidity of a single currency
The user deposits the base digital currency into the single currency revenue aggregator smart contract. The revenue aggregator smart contract will use the best revenue strategy to provide leverage for liquid mining, and at the same time, reinvest the revenue obtained. Funds will be reinvested in the agreement to earn more benchmark digital assets for users.

5. Team

5.1 Team Introduction

CEO - Jason Patrick Dekker
The founder and CEO of GoChain, who led the GoChain public chain to complete multiple rounds of financing. GoChain tokens were listed and traded on Binance Exchange in the early years. There are nearly 20 projects based on the GoChain all completed the token issued and successfully raised funds on Binance. GoChain is the world's fastest web3 blockchain protocol, and its client can complete 1,300 transactions per second. Jason Patrick Dekker led GoChain to complete more than 40 cooperation projects, including 5 cooperation with listed companies. These listed companies include Microsoft, Dish Network, FTI Consulting, Enviva Partners and Lenovo.

CTO - Hans Peng
CTO of a world-renowned blockchain company, who has 17 years of experience in the IT industry and 6 years of experience in the development of the blockchain industry. He is proficient in blockchain-related technologies, involving public chains, alliance chains, private chains, cryptography, smart contracts and so on, and maintain good communication and exchanges with top blockchain developers from all over the world, and at the same time be able to grasp the format and technology development trends in a timely manner.

6.Timeline

2021.3 Project established;

2021.6 The seed round financing was completed;

2021.7 The first version of the white paper was officially released

2021.7 Officially launch the official website

2021.7 Completed the first round of private placement;

2021.8 Released the concept map of the battle scene of the five ancestor dragon races ;

2021.8 Community established

2021.10 Pre-sales of genesis dragon eggs;

2021.10 Complete the second round of private placement;

2021.11 Launching the Marketplace and users can breed or exchange dragons with each other;

2021.11 Launching the revenue aggregator where users can start liquidity mining and stake dragons

2021.12 Launching the 1.0 version of the mobile game where users can control their dragons for battle;

2022.01 Launching IDO activities based on the 2.0 version of land, buildings and other props;

2022.02 Users can exchange land and items in the Marketplace;

2022.08 Launching the 2.0 version of the mobile game.